UNITED STATES PATENT AND TRADEMARK OFFICE

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ART UNIT	PAPER NUMBER
2151	18

DATE MAILED: 04/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *13 January 2004*.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-58* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-15 and 17-58* is/are rejected.

7) ☒ Claim(s) *16* is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some *   c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   This is response to the Amendment filed on 1/13/2004 (paper # 17). Claims 1-58

are presented for examination.

Claim Objections

2.   Claim 55 is objected to under 37 CFR 1.75(c) as being in improper form because of

a multiple dependent claims 55 and 26. See MPEP § 608.01(n).

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act

of 1999 (AIPA) and the Intellectual Property and High Technology Technical

Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting

directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior

to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4.   Claims 1-15, 17-20, 26-42 and 47-58 are rejected under 35 U.S.C. 102(e) as

being unpatentable over Malomsoky et al., US pat. No.5,872,918.

As to claim 1, Malomsoky discloses a method of management in a circuit-switched

communication network, the method being performed on, or with the aid of, at least one

programmable device connected to said network, characterized by the step of:

        computing and storing in an electronic memory a representation of the network

based on B-blocking islands (group of local exchanges 21, 22, 23, 24, 35 of fig.1 for

providing multiple virtual paths, each virtual path is a bundle of virtual connections, see

fig.1, abstract, col.3 lines 13-53 and col.4 line 36 to col.5 line 57)

        each blocking island consisting of a maximal set of nodes (using local exchanges

21, 22, 24 fig.1) linked in a such a way that at least one route with at least an amount B

of concave resources exists (allocating the right amount of transmission capacity of

each communication path in order to optimize network performance) between any pair

of nodes (using 21 and 35 of fig.1) in the set at the time t (see figs.3, 6, col.6 line 39 to

col.7 line 57 and col.8 line 48 to col.9 line 52).

As to claim 2, Malomsoky discloses organizing said B-blocking islands (taking nodes

601 and 605 of fig.6) in a hierarchy, wherein the hierarchical position of each Bi-

blocking island depends on the choice of the value B used for defining said blocking

island (see fig.6, col.8 line 20 to col.9 line 61 and col.12 lines 1-62).

As to claim 3, Malomsoky discloses values B used for is defining the blocking island

hierarchy are predefined according to common resources requirements (see col.12 lines

1-62 and col.13 lines 7-58).

As to claim 4, Malomsoky discloses changing dynamically said values used for defining

the blocking island hierarchy (see fig.9, col.12 line 14 to col.13 line 64).

As to claim 5, Malomsoky discloses dynamically merging at least one hierarchical level

two B-blocking islands when deallocation of an established circuit in said network has

freed enough resources on a link (I) between said two B-blocking islands (N;) such that

at least an amount B of resources is available on said link (optimizing the transmission

capacity allocated to each virtual path to minimize the cost function, see figs.6, 9, col.8

line 20 to col.9 line 61 and col.11 line 42 to col.12 line 63).

As to claim 6, Malomsoky discloses dynamically splitting at least one hierarchical level a

B-blocking island (N) (removing Virtual Paths with allocated capacities after identifying a

critical link) when establishment of a new circuit using at least one link between two

nodes inside said B-blocking island uses too many resources to allow a route with at

least an amount B of resources between any pair of nodes inside said B-blocking island

(see fig.9, col.12 line 35 to ocl.13 line 64 and col.19 line 14 to col.20 line 54).

As to claim 7, Malomsoky discloses updating said B-blocking island hierarchy in the case of rerouting of demands, link failure or link removal, alteration of the properties of a link, adding of a link, node failure, node removal or node addition (removing Virtual Paths with allocated capacities after identifying a critical link, see fig.9, col.12 line 35 to ocl.13 line 64 and col.19 line 14 to col.20 line 54)

As to claim 8, Malomsoky discloses finding a path between at least two nodes (601 and 605 of fig.6) in a circuit-switched communication network with at least an amount b of resources available, the search of said path (Virtual Path between the nodes) connecting confined to a B-blocking island comprising at least two said nodes, and B being bigger than b (see fig.6col.6 line 40 to col.7 line 57 and col.8 line 48 to ocl.9 line 51).

As to claim 9, Malomsoky discloses selecting the most suitable path by analyzing the impact each path has on the structure of blocking islands hierarchy (identifying the Virtual Path having the highest blocking value, see figs.6, 9, col.12 line 1 to col.13 line 64).

As to claim 10, Malomsoky discloses selecting the most suitable path by comparing at which level of the B-blocking island hierarchy each route appears (identifying the Virtual Path having the highest blocking value, see figs.6, 9, col.12 line 1 to col.13 line 64 and col.21 lines 1-57).

As to claim 11, Malomsoky discloses the search space for a demand of the routing algorithm is reduced to the sub-network summarized by the B-blocking island with the greatest predefined B that contains the endpoints of said demand (using "Push down" algorithm, figs.6, 9, col.12 line 1 to col.13 line 64 and col.21 lines 1-57).

As to claim 12, Malomsoky discloses rerouting connections that use more critical links at level B, of the hierarchy than necessary zig-zag connections (see figs.6, 9, col.12 line 1 to col.13 line 64 and col.21 lines 1-57).

As to claim 13, Malomsoky discloses determining the price of a communication, said price being dependent at least partially on the hierarchical level of the links used by the circuit established for the communication in said hierarchy of B-blocking islands (see figs.6, 9, col.12 line 1 to col.13 line 64 and col.21 lines 1-57).

As to claim 14, Malomsoky discloses analyzing the behavior of an existing circuit-switched communication network or planning the construction of a new circuit-switched communication network or the modification of an existing circuit-switched communications network (removing Virtual Paths as a result of a critical link, see figs.9, 12B, col.12 line 1 to col.13 line 64 and col.21 lines 1-57).

As to claim 15, Malomsoky discloses a hierarchy of autonomous intelligent agents, each agent being responsible for a set of nodes in said circuit-switched communication network, higher level agents arbitrating conflicts between peer agents, each agent being responsible for a dynamically defined set of nodes consisting of nodes linked in a such a way that at least a route with at least an amount B of concave resources exist between any pair of nodes in the set at the time t [allocating the right amount of transmission capacity of each communication path in order to optimize network performance between any pair of nodes (using nodes 21 and 35 of fig.1)], and the level of the agents in said hierarchy being dependent on the choice of the value B used for defining said set of nodes (see figs.1, 3, col.6 line 39 to col.7 line 57 and col.8 line 48 to col.9 line 52).

As to claim 17, Malomsoky discloses determining a price of a communication (providing a custom tailored quality of service according to the needs of customers), said price being dependent at least partially on the hierarchical level of the links used by the circuit established for the communication in said hierarchy of blocking islands (see figs.6, 12B, col.8 line 20 to col.9 line 61 and col.20 line 12 to col.21 line 58).

As to claims 18-20, Malomsoky discloses determining the nodes belonging to the same B-blocking s island is the bandwidth performed on a central hardware, software management platform and performed by distributed communication and/or terminal

nodes in the network (see figs.1, 6, col.8 line 20 to col.9 line 61 and col.20 line 12 to

col.21 line 58).

As to claim 26, Malomsoky discloses a device (D fig.6) which can be used as a terminal

node or as a communication node in a circuit-switched communication network,

characterized by means for computing a representation of the network based on B-

blocking islands, each B-blocking island consisting of a maximal set of concave nodes

linked in a such a way that at least one route with at least an amount B of resources

exists between any pair of nodes (taking nodes 601 and 605 of fig.6) in the set at the

time t, and storing means for storing said representation [allocating the right amount of

transmission capacity of each communication path in order to optimize network

performance between any pair of nodes (601 and 605 fig.6)] in the set at the time t (see

figs.1, 6, abstract, col.6 line 39 to col.7 line 57 and col.8 line 48 to col.9 line 52).

Claims 27-38 are rejected for the same reasons ser froth in claims 2-11, 13 and 14

respectively.

As to claim 39, Malomsoky discloses means to connect it to said circuit-switched

communication network (values of Virtual Paths assigned in each cross-connect switch,

see fig.4, col.6 line 40 to col.57).

Claims 40-42 and 47 are rejected for the same reasons ser froth in claims 19, 20, 15

and 18 respectively.

Claims 48-49 are rejected for the same reasons ser froth in claims 1 and 2 respectively.

As to claims 50, 51 and 54, Malomsoky discloses graphically displaying on a display

connected to said programmable device a summarized representation of said network

critical links between said blocking islands (graphs of the characteristics of the Entropy

Rate Function, see figs.10, 11, col.14 lines 6-65 and col.15 line 60 to col.16 line 61).

Claim 52 is rejected for the same reasons ser forth in claim 26. As to the added

limitations, Malomsoky discloses processing means, storing means and display means

(see fig.6, col.8 line 29 to col.9 line 61).

Claim 55, 56 and 58 are rejected for the same reasons ser forth in claim 26.

Claim 57 is rejected for the same reasons ser forth in claim 48.

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the

claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the

various claims was commonly owned at the time any inventions covered therein were

made absent any evidence to the contrary. Applicant is advised of the obligation under

37 CFR 1.56 to point out the inventor and invention dates of each claim that was not

commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

6.   Claims 21-25 and 43-46 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Malomsoky et al., US pat. No.5,872,918 as in item 4 above and in

view of Nagami et al US pat. No.5,835,710.

Malomsoky 's teachings still applied as in item 4 above.   Malomsoky does not disclose

using an ATM network, ATM switch, a SDH network, RSVP and TCP/IP network, and a

TDM network. However, such protocols are generally well known in the communication

networks as disclosed by Nagami (see figs.1, 4, 44, col.7 line 55 to col.8 line 36 and

col.13 line 8 to col.15 line 51). It would have been obvious to one of the ordinary skill in

the art at the time the invention was made to utilize such protocols in the computer

system of Malomsoky to provide network interconnection because it would have

provided more utilizations of the computer network and transmitted data or frame relay

traffic in real time.

Allowable Subject Matter

7.   Claim 16 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

8.   Applicant's arguments with respect to claims 1-15 and 17-58 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9.   Claims 1-15 and 17-58 are rejected.

10.   Claim 16 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh Dinh whose telephone number is (703) 308-8528. The examiner can normally be reached on Monday through Friday from 8:00 A.m. to 5:00 P.m.

     If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenton Burgess, can be reached on (703) 305-4712.   The fax phone number for this group is (703) 872-9306.

A shortened statutory period for reply is set to expire THREE months from the mailing date of this communication. Failure to response within the period for response will cause the application to become abandoned (35 U. S. C . Sect. 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(A).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305 -9600.

FRANTZ B. JEAN
PRIMARY EXAMINER

Khanh Dinh
Patent Examiner
Art Unit 2151
4/1/2004